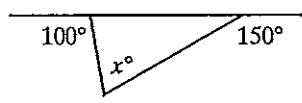


**Mini Test 31: Mixed Questions**

1 Which fraction has the same value as  $5\frac{3}{4}$ ?  
 A  $\frac{23}{4}$     B  $\frac{17}{4}$     C  $\frac{19}{4}$     D  $\frac{21}{4}$

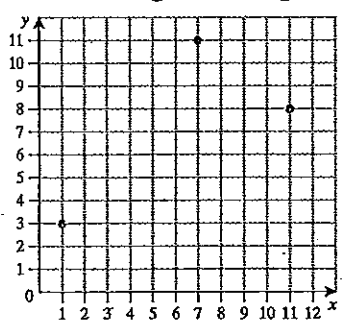
2 Which number is exactly halfway between  $5\frac{1}{2}$  and 7?  
 A 6    B  $6\frac{1}{4}$     C  $6\frac{3}{8}$     D  $6\frac{3}{4}$

3 The area of a rectangle is  $108 \text{ cm}^2$ . The width of the rectangle is 9 cm. What is the perimeter of the rectangle?  cm

4 What is the value of  $x$  in this diagram?  
  
 A 50    B 70    C 80    D 90

5 Which of these is in order from lowest to highest?  
 A  $\frac{2}{3}, \frac{3}{4}, \frac{5}{6}, \frac{7}{9}$     B  $\frac{7}{9}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$   
 C  $\frac{2}{3}, \frac{3}{4}, \frac{7}{9}, \frac{5}{6}$     D  $\frac{7}{9}, \frac{5}{6}, \frac{3}{4}, \frac{2}{3}$

6 There were 1500 tickets sold in a competition. 40% of the tickets were blue and the rest were green. One-third of the blue tickets and one-quarter of the green tickets won prizes. How many prizes were won altogether?

7 Samantha is drawing a rectangle.  


She has placed points at (1, 3), (7, 11) and (11, 8). Where should she place the final point?  
 A (5, 3)    B (3, 0)    C (0, 5)    D (5, 0)

8 What is the answer to  $0.4 \div 0.8$ ?  
 A 50    B 5    C 0.5    D 0.05

9 0.25, 2.5, 4.75, 7, ...  
 What is the eighth number in this pattern?

10 What is the size of the obtuse angle formed by the hands of this clock? °



11 Of the 120 marbles in a jar,  $\frac{1}{4}$  are red,  $\frac{1}{3}$  are green and the rest are blue. What is the chance that if one marble is taken from the jar without looking it will be blue?  
 A  $\frac{5}{7}$     B  $\frac{2}{7}$     C  $\frac{7}{12}$     D  $\frac{5}{12}$

12 Wendy left at 6:20 am and travelled 245 km, arriving at 9:50 am. What was her average speed?  km/h

13 Declan used the rule 'double the previous number and add 3' to work out the numbers in his pattern. The first number was 1. What was the fifth number?

14 A box of chocolates has some dark chocolates and the rest are milk chocolates. The ratio of milk to dark chocolates in the box is 5 to 2. If there are 35 chocolates in the box, how many more milk chocolates are there than dark chocolates?  
 A 10    B 15    C 20    D 25

15 The temperature at midnight was  $4^\circ\text{C}$ . The temperature at 5 am was  $7^\circ$  colder than it was at midnight. What was the temperature at 5 am? °C

16 The volume of a rectangular prism is 160 cubic centimetres. The dimensions of another rectangular prism are half that of the first prism. What is the volume of the second prism?  
 A  $20 \text{ cm}^3$     B  $40 \text{ cm}^3$     C  $60 \text{ cm}^3$     D  $80 \text{ cm}^3$

Mini Test 31: Mixed Questions..... Page 34

- 1 A 2 B 3 42 cm 4 B 5 C 6 425 7 D 8 C  
 9 16 10 150° 11 D 12 70 km/h 13 61 14 B  
 15 = 3°C 16 A

1  $5\frac{3}{4} = \frac{5 \times 4 + 3}{4}$   
 $= \frac{23}{4}$

2 The number halfway between two others is the average of those other numbers.

Now  $5\frac{1}{2} + 7 = 12\frac{1}{2}$

and  $12\frac{1}{2} \div 2 = 6\frac{1}{4}$

So the number halfway between  $5\frac{1}{2}$  and 7 is  $6\frac{1}{4}$ .

3 Area = length  $\times$  width

So the length  $\times$  9 cm = 108 cm<sup>2</sup>

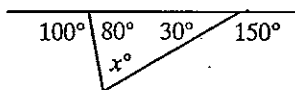
Length = (108  $\div$  9) cm  
 = 12 cm

Perimeter = 2  $\times$  (length + width)  
 = 2  $\times$  (12 + 9) cm  
 = 2  $\times$  21 cm  
 = 42 cm

4 Angles in a straight line add to 180°.

So the angle forming a straight line with the angle of 100° is 80°.

The angle forming a straight line with the angle of 150° is 30°.



Angles in a triangle add to 180°.

So  $x + 80 + 30 = 180$

$x + 110 = 180$

$x = 70$

5 The lowest common denominator is 36.

$\frac{2}{3} = \frac{24}{36}$  (after multiplying both numerator and denominator by 12)

$\frac{3}{4} = \frac{27}{36}$  (after multiplying both numerator and denominator by 9)

$\frac{5}{6} = \frac{30}{36}$  (after multiplying both numerator and denominator by 6)

$\frac{7}{9} = \frac{28}{36}$  (after multiplying both numerator and denominator by 4)

So, in order the fractions are  $\frac{24}{36}, \frac{27}{36}, \frac{28}{36}, \frac{30}{36}$ .

This means that in order from lowest to highest the fractions are  $\frac{2}{3}, \frac{3}{4}, \frac{7}{9}, \frac{5}{6}$ .

6 The number of blue tickets is 40% of 1500.

Now 10% of 1500 is 150.

So 40% of 1500 =  $4 \times 150$   
 = 600

So there were 600 blue tickets.

Number of green tickets = 1500 - 600  
 = 900

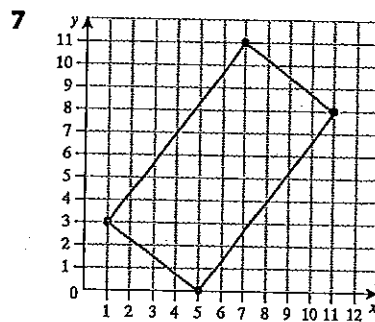
Now  $\frac{1}{3}$  of the blue tickets won prizes.

Number of prizes from blue tickets = 600  $\div$  3  
 = 200

$\frac{1}{4}$  of the green tickets won prizes.

Number of prizes from green tickets  
 = 900  $\div$  4  
 = 225

Total prizes = 200 + 225  
 = 425



To make a rectangle the fourth point would need to be at (5, 0).

8  $0.4 \div 0.8 = 4 \div 8$   
 = 0.5

$\begin{array}{r} 0.5 \\ 8 \overline{)4.0} \end{array}$

9 0.25, 2.5, 4.75, 7, ...

$\begin{array}{r} 2.450 \\ - 0.25 \\ \hline 2.25 \\ 4.75 \\ - 2.50 \\ \hline 2.25 \end{array}$

$\begin{array}{r} 67.910 \\ - 4.75 \\ \hline 2.25 \end{array}$

The numbers are increasing by 2.25 each time.

Continue the pattern:

0.25, 2.5, 4.75, 7, 9.25, 11.5, 13.75, 16, 18.25, ...

The eighth number is 16.

10 In one hour the minute hand turns through 360°.

There are 12 divisions on the clockface.

Each division = 360°  $\div$  12  
 = 30°

At 5 o'clock there are 5 divisions between the two hands.

Angle between the hands = 5  $\times$  30°  
 = 150°

$$\begin{aligned}
 11 \text{ Number of red marbles} &= 120 \div 4 \\
 &= 30 \\
 \text{Number of green marbles} &= 120 \div 3 \\
 &= 40 \\
 \text{Total red and green marbles} &= 30 + 40 \\
 &= 70 \\
 \text{Number of blue marbles} &= 120 - 70 \\
 &= 50 \\
 \text{Chance of blue marble} &= \frac{50}{120} \\
 &= \frac{5}{12}
 \end{aligned}$$

[Or, the chance of red is  $\frac{1}{4}$  and the chance of green is  $\frac{1}{3}$ . The chance of red or green is  $\frac{1}{4} + \frac{1}{3} = \frac{3}{12} + \frac{4}{12} = \frac{7}{12}$ . The chance of blue is  $1 - \frac{7}{12} = \frac{5}{12}$ .]

$$\begin{aligned}
 12 \text{ Distance travelled} &= 245 \text{ km} \\
 \text{From 6:20 until 9:20} &\text{ is 3 hours.} \\
 \text{From 9:20 until 9:50} &\text{ is 30 minutes or } \frac{1}{2} \text{ hour.} \\
 \text{Time taken} &= 3\frac{1}{2} \text{ hours} \\
 \text{Speed} &= 245 \text{ km in } 3\frac{1}{2} \text{ h} \\
 &= 490 \text{ km in 7 h} \\
 &= 70 \text{ km/h}
 \end{aligned}$$

$$\begin{aligned}
 13 \text{ First number} &= 1 \\
 \text{Second number} &= 2 \times 1 + 3 \\
 &= 5 \\
 \text{Third number} &= 2 \times 5 + 3 \\
 &= 13 \\
 \text{Fourth number} &= 2 \times 13 + 3 \\
 &= 26 + 3 \\
 &= 29 \\
 \text{Fifth number} &= 2 \times 29 + 3 \\
 &= 58 + 3 \\
 &= 61
 \end{aligned}$$

$$\begin{aligned}
 14 \text{ For every 5 milk chocolates there are 2 dark chocolates.} \\
 \text{So 5 out of every 7 chocolates are milk ones.} \\
 \text{Now } 35 \div 7 &= 5 \\
 \text{So there are 5 lots of 7 chocolates in the box.} \\
 \text{Number of milk chocolates} &= 5 \times 5 \\
 &= 25 \\
 \text{Number of dark chocolates} &= 5 \times 2 \\
 &= 10 \\
 \text{Difference} &= 25 - 10 \\
 &= 15
 \end{aligned}$$

There are 15 more milk chocolates than dark chocolates.

$$\begin{aligned}
 15 \text{ The temperature at midnight} &= 4^\circ\text{C} \\
 \text{If it was } 4^\circ \text{ colder the temperature would be} \\
 &\text{zero degrees.} \\
 \text{But the temperature dropped by } 7^\circ \text{ so} \\
 \text{it dropped another } 3^\circ. \text{ It was 3 degrees} \\
 &\text{below zero.} \\
 \text{The temperature at 5 am} &= -3^\circ\text{C.}
 \end{aligned}$$

$$\begin{aligned}
 16 \text{ New prism is half the length, half the width} \\
 \text{and half the height of the first one.} \\
 \text{Number of times smaller} &= 2 \times 2 \times 2 \\
 &= 8 \\
 \text{New volume} &= (160 \div 8) \text{ cm}^3 \\
 &= 20 \text{ cm}^3
 \end{aligned}$$